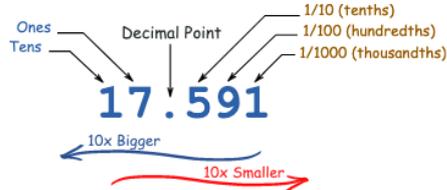
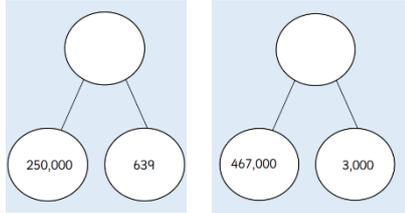
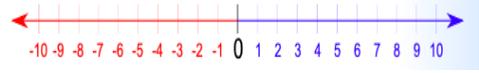
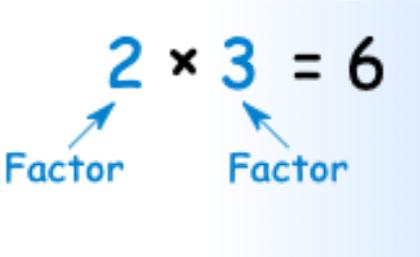
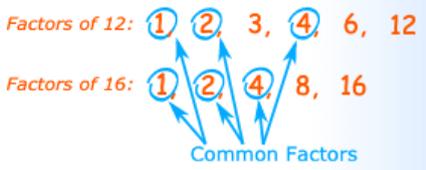


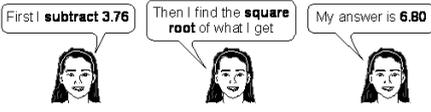
Power Maths Key Vocabulary
Year 6 – Block A

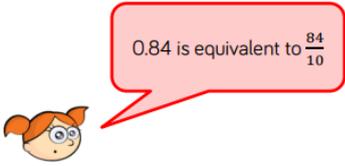
Key Vocabulary	Explanation of Terms	Example Question(s)
<p>place value</p>	<p>The value of where a digit is in the number.</p> 	<p>In 17.591, what is the value of the 9?</p> <p>(The 9 is in the "hundredths" place, so its place value is 0.09.)</p> <p>Write each number in digits:</p> <ul style="list-style-type: none"> eight thousand and ninety-two eight hundred thousand and ninety-two eight million and ninety-two eight million, eight hundred thousand and ninety-two eight million, nine hundred and ninety-two eight million, nine hundred and twenty-nine
<p>partition</p>	<p>Partitioning is used to make solving maths problems involving large numbers easier by separating them into smaller units. By using partitioning, it helps students to understand the values of each digit.</p>	<p>How can the number 1,227 be partitioned? (1,000, 200, 20 & 7)</p> <p>Complete the part whole models:</p> 
<p>estimate</p>	<p>To estimate means to find something close to the correct answer. In other words, you are approximating.</p>	<p>Estimate the number of cherries in the jar.</p> <p>Jason and Fred both collect marbles. Jason has collected 6,424 and Fred has collected 7,517 marbles. Round each number to the nearest 100 and estimate how many marbles they</p>

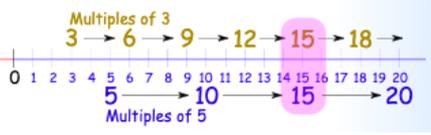
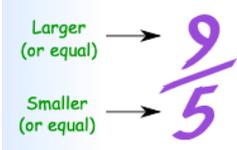
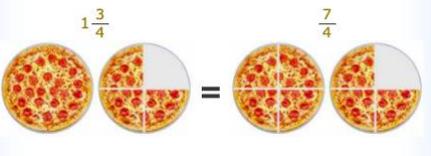
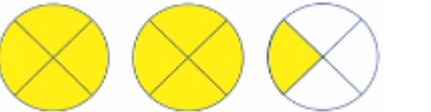
		will have altogether ($6,400 + 7,500 = 13,900$).
positive/negative	 <p>A number less than 0 is negative.</p> <p>A number greater than 0 is positive.</p>	<p>Giving reasons, explain whether the following are true or false:</p> <ul style="list-style-type: none"> • Nineteen less than eleven is minus eight (true) • $-39 + 23 = -62$ (false -16) • $27 \text{ more than } -18 = -45$ (false 9)
rounding	<p>Rounding means making a number simpler but keeping its value close to what it was. The result is less accurate, but easier to use.</p> <p>Example: 73 rounded to the nearest ten is 70, because 73 is closer to 70 than to 80. But 76 goes up to 80.</p>	<p>Round 12,254 to the nearest 10. (12,250)</p> <p>The school kitchen wants to order enough jacket potatoes for lunch. Potatoes come in sacks of 100. How many sacks do they need for 766 children? (8)</p> <p>A number rounded to the nearest 10 is 550. What is the smallest possible number it could be? (446)</p>
column multiplication	<p>Column multiplication is a written method of multiplying numbers.</p> <p>For example:</p> $ \begin{array}{r} \text{T H T O} \\ \hline 36 \\ X 74 \\ \hline 24 \quad (4 \times 6) \\ 120 \quad (4 \times 30) \\ 420 \quad (70 \times 6) \\ 2100 \quad (70 \times 30) \\ \hline 2664 \end{array} $	<p>Using column multiplication calculate 234×6. (1,404)</p> <p>A school organises a sponsored run for charity. They want to raise £2,600 to help towards building a new library. 124 runners enter the race. Each runner gets sponsored £22. Will this be enough for the school to hit their target? (Yes – £2,728)</p> <p>A cyclist plans to cycle down to Italy. He must cycle 2650 miles to Rome. He cycles 112 miles each day. Will 24 days of riding be enough to get him to Rome? (Yes – 2,688)</p>
column addition	<p>When writing down column addition sums, separate the numbers into ones, tens, hundreds and thousands. List the numbers in a column and always start adding with the ones first.</p> $ \begin{array}{r} \text{TTh Th H T O} \\ 19175 \\ + 18417 \\ \hline 37592 \end{array} $	<p>Using column addition calculate $1,337,134 + 34,555$ (1,371,689).</p> <p>The great dragons of the west burnt 19,426 houses in their first week. They burnt 73,645 houses in their second week and more in their third week. In total, 155,478 houses were burnt. How many did they burn in week 3? (62,407)</p>

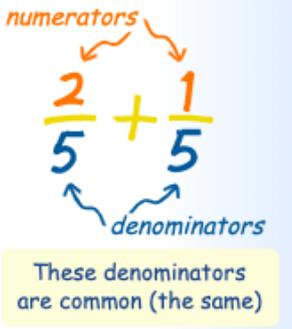
<p>factor</p>	<p>These are numbers we can multiply together to get another number.</p>  <p>$2 \times 3 = 6$, therefore 2 and 3 are factors of 6.</p>	<p>What are all the factors of 12? $1 \times 12 = 12$ $2 \times 6 = 12$ $3 \times 4 = 12$ Therefore, the factors of 12 are: 1, 12, 2, 6, 3 & 4.</p> <p>The year 2010 is one in which the sum of the digits is a factor of the year itself. What is the next year that has the same property?</p> <p>A certain number has exactly eight factors including 1 and itself. Two of its factors are 21 and 35. What is the number?</p>
<p>common factor</p>	<p>When numbers have the same factors these are common factors.</p>	<p>What are the common factors of 12 and 16?</p>  <p>Find the common factors of: 15 and 20 12 and 9 4 and 6 10 and 18 16 and 12 20 and 8</p> <p>Tick the cards that are common factors of 12 and 18</p> 
<p>common multiple</p>	<p>A common multiple is a multiple that is common to two or more numbers.</p>	<p>List the common multiples of 3 and 5.</p> <p>The multiples of 3 are: 3, 6, 9, 12, 15, 18, etc...</p> <p>The multiples of 5 are: 5, 10, 15, 20, 25 etc...</p> <p>So, a common multiple of 3 and 5 is 15 (and 30, 45 etc...)</p>
<p>prime</p>	<p>A prime number is a whole number greater than 1 that can only be divided evenly by itself and 1.</p>	<p>Is 5 a prime number? (5 is a prime number, it can only be divided evenly by itself and 1).</p>

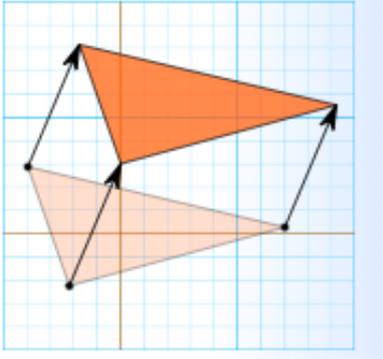
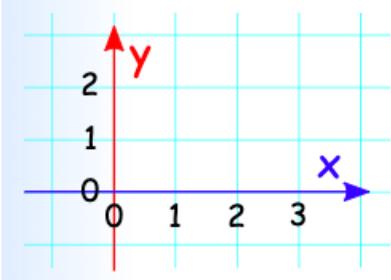
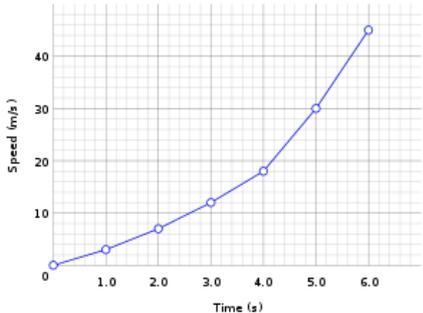
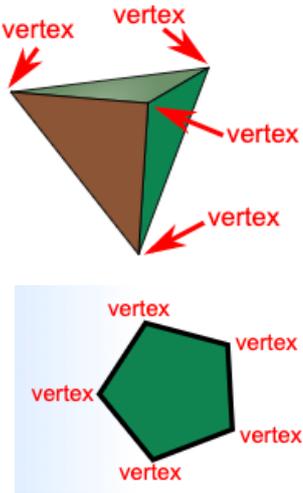
		<p>Is 6 a prime number? (6 is not a prime number as it can be divided by 2 and 3).</p> <p>Which of the following numbers is the product of exactly 3 distinct prime numbers? 45, 60, 91, 105, 330</p> <p>Peter wrote a list of all the numbers that can be formed by changing one digit of the number 200. How many of Peter's numbers are prime?</p>																	
composite	A composite number is a whole number that can be divided evenly by another number apart from itself and 1. (The opposite of a prime number.)	<p>Is 6 a composite number? (6 is a composite number as it can be divided by 2 and 3).</p> <p>Is 5 a composite number? (5 is not a composite number as it can only be divided by itself and 1).</p>																	
squared (²)	To square a number is to multiply it by itself.	<p>What is 4 squared? (4 x 4 = 16)</p> <p>Which of these numbers are square numbers? How can you prove it?</p> <p style="text-align: center;">9 0.25</p> <p style="text-align: center;"> 16 8</p> <p>(9, 16)</p> <p>Complete the table by putting the labels in the correct place.</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px dashed black; padding: 2px;">A</td> <td style="padding: 2px;">Square number</td> <td style="border: 1px dashed black; padding: 2px;">C</td> <td style="padding: 2px;">Multiple of 6</td> </tr> <tr> <td style="border: 1px dashed black; padding: 2px;">B</td> <td style="padding: 2px;">Not a square number</td> <td style="border: 1px dashed black; padding: 2px;">D</td> <td style="padding: 2px;">Not a multiple of 6</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="border: 1px dashed black; width: 30px; height: 30px;"></td> <td style="width: 100px; height: 30px;"></td> <td style="border: 1px dashed black; width: 30px; height: 30px;"></td> </tr> <tr> <td style="border: 1px dashed black; width: 30px; height: 30px;"></td> <td style="width: 100px; height: 30px;">36 144</td> <td style="border: 1px dashed black; width: 30px; height: 30px;"></td> </tr> <tr> <td style="border: 1px dashed black; width: 30px; height: 30px;">D</td> <td style="width: 100px; height: 30px;">9 16 100 25 49</td> <td style="border: 1px dashed black; width: 30px; height: 30px;"></td> </tr> </table>	A	Square number	C	Multiple of 6	B	Not a square number	D	Not a multiple of 6					36 144		D	9 16 100 25 49	
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cubed (³)	To cube a number is to multiply it by itself twice .	<p>What is 4 cubed? (4 x 4 x 4 = 64)</p> <p>How many cubes do you need to build a 4 x 4 x 4 cube? (64)</p> <p>Tick the card that has the greatest value.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid blue; border-radius: 10px; padding: 5px 15px; margin: 5px;">10²</div> <div style="border: 1px solid blue; border-radius: 10px; padding: 5px 15px; margin: 5px;">3³</div> <div style="border: 1px solid blue; border-radius: 10px; padding: 5px 15px; margin: 5px;">5³</div> </div>																	

<p>order of operations</p>	<p>The rules that say which calculation comes first in an expression.</p> <p>They are:</p> <ul style="list-style-type: none"> • do everything inside parentheses first: (). • then multiply and divide from left to right. • then add and subtract from left to right. 	<p>$(3+9) \times 10 - 7 \times 2 = ?$</p> <p>1) Do everything inside the brackets: $3 + 9 = 12$</p> <p>$12 \times 10 - 7 \times 2 = ?$</p> <p>2) Multiply and divide: $120 - 14 = ?$</p> <p>3) Add and subtract: $120 - 14 = 106$</p>
<p>brackets</p>	<p>Brackets prioritise the order in which we complete calculations.</p>	<p>Put brackets into these number sentences so they are true:</p>  <p>$15 + 7 \times 4 = 88$ $18 - 9 - 2 = 11$ $8 \times 4 - 2 \times 5 = 22$ $16 \div 8 - 4 = 4$ $9 + 12 \div 7 - 4 = 7$</p> <p>Which two calculations give the same answer?</p> <p><input type="checkbox"/> A $6 + 4 \times 7$</p> <p><input type="checkbox"/> B $(6 + 4) \times 7$</p> <p><input type="checkbox"/> C $6 + (4 \times 7)$</p>
<p>inverse operation</p>	<p>The operation that reverses the effect of another operation.</p> <p>Addition and subtraction are inverse operations.</p> <p>Start with 7, then add 3 we get 10, now subtract 3 and we get back to 7.</p>	<p>Raj thinks of a number. He says "If I subtract 14 from it, I get 29." What is Raj's number? (43)</p> <p>Mary thinks of a number.</p>  <p>Which number did Mary think of? (50)</p>
<p>numerator denominator</p>	<p>The numerator is the top number of a fraction.</p>	<p>Identify the numerator and denominator in the fraction $\frac{3}{4}$.</p>

	 <p>The denominator is the bottom number of a fraction.</p>	<p>Dora and Whitney are converting $\frac{30}{500}$ into a decimal.</p> <ul style="list-style-type: none"> Dora doubles the numerator and denominator, then divides by 10 Whitney divides both the numerator and the denominator by 5 Both get the answer $\frac{6}{100} = 0.06$ <p>Which method would you use to work out each of the following?</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid orange; padding: 5px; margin: 2px;">$\frac{25}{500}$</div> <div style="border: 1px solid orange; padding: 5px; margin: 2px;">$\frac{125}{500}$</div> <div style="border: 1px solid orange; padding: 5px; margin: 2px;">$\frac{40}{500}$</div> <div style="border: 1px solid orange; padding: 5px; margin: 2px;">$\frac{350}{500}$</div> </div> <p>Explain why you have used a certain method.</p>
<p>equivalent</p>	<p>Equivalent signifies that 2 things are equal.</p> 	<p>Alex says,</p>  <p>Do you agree? Explain why.</p> <p>Write the two missing values to make these equivalent fractions equal.</p> $\frac{\square}{3} = \frac{8}{12} = \frac{4}{\square}$ <p>Match the fractions to the equivalent decimals.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid orange; padding: 5px; margin: 2px;">$\frac{2}{5}$</div> <div style="border: 1px solid purple; padding: 5px; margin: 2px;">0.04</div> <div style="border: 1px solid orange; padding: 5px; margin: 2px;">$\frac{1}{25}$</div> <div style="border: 1px solid purple; padding: 5px; margin: 2px;">0.4</div> <div style="border: 1px solid orange; padding: 5px; margin: 2px;">$\frac{1}{4}$</div> <div style="border: 1px solid purple; padding: 5px; margin: 2px;">0.25</div> </div>
<p>simplify</p>	<p>To simplify a fraction means to make it as simple as possible.</p> <p>We can do this by dividing the denominator and numerator by the same number.</p>	<p>Simplify $\frac{2}{10}$ ($\frac{2}{10}$ can be simplified to $\frac{1}{5}$ by dividing both top and bottom by 2.)</p>

		<p>Max says $\frac{30}{50}$ in its simplest form is $\frac{15}{25}$</p> <p>Is Max correct?</p> <p style="text-align: center;">Yes No</p> <p>Explain your answer.</p>
highest common factor	The highest number that is a factor of 2 or more other numbers.	<p>What is the highest common factor of 12 and 16?</p> 
lowest common multiple (LCM)	The smallest positive number that is a multiple of two or more numbers.	<p>What is the lowest common multiple of 3 and 5?</p>  <p>Answer: 15</p>
ascending	To arrange numbers in ascending order (from smallest to largest).	<p>Arrange the following numbers into ascending order:</p> <p>68, 55, 67, 3, 66</p> <p>(3, 55, 66, 67, 68)</p>
descending	To arrange numbers in descending order (from largest to smallest):	<p>Arrange the following numbers into descending order:</p> <p>42, 5, 3, 44, 55</p> <p>(55, 44, 42, 5, 3)</p>
improper fractions	<p>An improper fraction means the numerator (the top number) is greater than or equal to the denominator (the bottom number).</p> <p>We refer to it as being 'top-heavy'.</p> 	<p>Can you write 1 and $\frac{3}{4}$ as an improper fraction?</p>  <p>Write the fraction as an improper fraction:</p>  <p><input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p>
mixed numbers	A whole number and a fraction combined into one is called a mixed number.	<p>Jack and Whitney have some juice. Jack drinks $2\frac{1}{4}$ litres and Whitney drinks $2\frac{5}{12}$ litres. How much do they drink altogether? Complete</p>

		<p>this using two different methods. Which method do you think is more efficient? Why?</p> <p>Fill in the missing numbers.</p> $4 \frac{5}{6} + \begin{array}{ c c } \hline \square & \square \\ \hline \square & \square \\ \hline \end{array} = 10 \frac{1}{3}$
<p>convert</p>	<p>To convert is to change from one form to another.</p>	<p>Convert 10cm into millimetres. (10cm = 100mm)</p> <p>Mo thinks that 12,000 g is greater than 20 kg because $12,000 > 20$. Explain why Mo is wrong. (12,000 g = 12 kg, which is less than 20 kg)</p> <p>Each nail weighs 3.85 grams. There are 24 nails in a packet. What would be the total mass of 60 packets of nails? Give your answer in kilograms. How many packets would you need if you wanted 1 2 kg of nails? How many grams of nails would be left over? (5 .544 kg, 6 packets (554.4 g), 55.4 g left over)</p>
<p>common denominator</p>	<p>When two or more fractions have the same denominator (the bottom number).</p> 	<p>Express the following pairs of fractions with the same denominator.</p> $\frac{3}{8} \text{ and } \frac{2}{3} \qquad \frac{7}{10} \text{ and } \frac{3}{4}$ $\frac{1}{4} \text{ and } \frac{4}{15} \qquad \frac{3}{10} \text{ and } \frac{7}{18}$ <p>Use common numerators to help you compare $\frac{2}{5}$ and $\frac{2}{3}$</p> <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid gray; width: 100px; height: 15px; background-color: #ccc; position: relative;"> </div> <div style="font-size: 24px;">></div> <div style="border: 1px solid gray; width: 100px; height: 15px; background-color: #ccc; position: relative;"> </div> </div> <div style="display: flex; align-items: center; gap: 10px; margin-top: 5px;"> <div style="border: 1px solid gray; width: 100px; height: 15px; background-color: #ccc; position: relative;"> </div> <div style="font-size: 24px;"><</div> <div style="border: 1px solid gray; width: 100px; height: 15px; background-color: #ccc; position: relative;"> </div> </div>
<p>lowest common denominator</p>	<p>The smallest number that can be used for all denominators of 2 or more fractions:</p> <ul style="list-style-type: none"> • a "Denominator" is the bottom number of a fraction. • a "Common Denominator" is when 	<p>Find the lowest common denominators for $\frac{2}{8}$ and $\frac{6}{12}$.</p> <p>$\frac{2}{8} = \frac{1}{4}$ & $\frac{6}{12} = \frac{2}{4}$ (The lowest common denominator for these 2 fractions is 4 as they both can be represented in quarters).</p>

	<p>the bottom number is the same for the fractions.</p> <ul style="list-style-type: none"> the "Least Common Denominator" is the smallest number that can be used for all denominators of the fractions. 	
<p>translate translation</p>	<p>A translation is when we move a shape without rotating or flipping it. A translation is described by stating a horizontal (left or right) and vertical (up or down) movement.</p>	<p>Translate this shape 2 squares to the right and 4 squares up.</p> 
<p>x-axis y-axis</p>	<p>A reference line drawn on a graph (you can measure it to find values).</p>  <p>Here is a graph with an x axis and a y axis.</p>	<p>Label the X and Y axis in the graph below.</p> 
<p>vertex</p>	<p>A vertex is a point where 2 or more line segments meet. A corner.</p> <p>Plural = vertices</p> 	<p>How many vertices does a square have? (4)</p> <p>How many vertices does a cube have? (8)</p> <p>How many vertices does a football have? (0)</p>

	<p>These examples show vertices in 2D and 3D shapes.</p>	
<p>reflect reflection</p>	<p>A reflection is an image or shape as it would be seen in a mirror.</p> <p>You could fold the completed image in half and it will match exactly if an image has been reflected correctly.</p>	<p>Can you reflect shape A along the y axis?</p>